UNICEF AND MINISTRY OF EDUCATION GIRLS' EDUCATION PROJECT IN TURKEY: "HAYDİ KIZLAR OKULA!" DID IT WORK? WHAT IS THE AFTERMATH?

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UNICEF AND MINISTRY OF EDUCATION GIRLS' EDUCATION PROJECT IN TURKEY: "HAYDİ KIZLAR OKULA!" DID IT WORK? WHAT IS THE AFTERMATH?

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

SUMMARY

This study investigates whether the girls' education project "Haydi Kızlar Okula!" was able to increase girls' primary enrollment rates and to what extent it was effective. In Turkey, there is still gender disparity in primary education although it is compulsory. "Haydi Kızlar Okula!" is UNICEF and Turkish Ministry of Education's joint project, which aims to increase girls' primary enrollment. The project consists of increasing public awareness, free books and incentives (in the form of conditional cash transfer) for female students. To find the magnitude of the program's impact, data is collected from Turkish and European statistical databases and a panel data analysis is employed.

The results show that if the program has been implemented in a province, girls' enrollment rate increases by 1.3×10^{-2} units and total enrollment increases by 1.4×10^{-2} units. Conditional Cash Transfer (CCT) found to have a bigger impact on girls' enrollment rates than total enrollment rates but the impact is not statistically significant. When a dummy for poverty is included in the model, then CCT becomes significant and the impact can be interpreted as; 1% increase in the conditional cash paid to a province results in 1.3×10^{-4} units increase in girls' enrollment rates. It is concluded that the project's impact is statistically significant but the magnitude is smaller than expected. Improvements are needed for increasing the effectiveness of the project. New cash transfer schemes should be implemented and community contribution should be encouraged. Another result of the analysis show that school buildings and adult literacy have greater impacts than the girls' education project.

1 INTRODUCTION

On September 19th 2011, in Sivas, 11 years old Aykut called the police and reported his parents not sending him to school. Parents were taken to the police station and questioned. Father was a construction worker and mother not working. By the help of Ministry of Education and Social Assistance and Security Fund, Aykut is now enjoying the class with his friends.[1] There are thousands of children in Turkey just like Aykut but not as lucky. Zehra from Eskin village had to leave school at 5th grade. To her it is custom in their village for girls to not go to school. She says: "…girls sit at home, do the housework and wait for their fortune."[2] It is not that Zehra is not as ambitious as Aykut, it is just the customs or resources that keep these children out of school.

Turkey still hasn't met 100% primary completion rates. Problems of gender disparity and regional gaps in education outcomes still exist. There are a number of interventions and projects to increase the enrollment rates in Turkey. This study focuses on one of these projects "Haydi Kızlar Okula!"[3], which specializes on the girls' education, especially in the rural regions of the country. The study is an important contribution to the females' education literature mainly because of the study region. This is one of the first studies using Turkey's education data in empirical research to explain low educational outcomes for girls in developing countries and actions taken towards changing this fact. Purpose of this study is to see whether the project "Haydi Kızlar Okula!" was effective in terms of showing positive and significant results towards enrollment rates.

The following text consists of Introduction, Data, Model and Results and Conclusion sections in the order mentioned here. In the Introduction section country overview, status

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[1]Source:Radikal Newspaper article, 10/29/2011
http://www.radikal.com.tr/Radikal.aspx?aType=RadikalDetayV3&ArticleID=1063940&Date=29.10.2011&CategoryID=86

[2] Quarterly Nesletter of UNICEF Turkey, SayYes, Summer 2007

[3] "Off to school girls!" (source: http://www.unicef.org/turkey/pdf/ge20.pdf)

of education and girls' education, literature background and the information on "Haydi Kızlar Okula!" will be provided.

1.1 Overview: Turkey

Turkey is located between Asia and Europe, connecting these two continents along with people from various cultures. The diverse landscape and population of the country lets people experience different lifestyles and living conditions. There are people from different cultures and ethnicities; Arabs, Balkans, Kurds, Turkic and Turks. Kurds are the second largest ethnic group, following Turks. 95% of the population is Muslim. Turkey's population is around 73 million with a 1.25% growth rate[4]. More than 50% of the population is under 30 years of age. Having young population is promising for economic development but it brings problems, too. Employment, health and education are the major challenges. Climate and landscape also vary as the people. One can see meadows and mountains, seas and dry lands on its land of 302,535 sq. mi. Diversity brings cultural and geographical richness but it usually is a challenge for the service providers. From a sociological point of view, people's expectations from the authorities and their response to interventions differ when their cultural backgrounds are different. Perspectives on education and education policies also change with culture. On the other hand, when we have geographical diversity, accessibility of services is not homogeneous for the whole country. In the mountainous areas children have hardships to go to school or the local governments cannot provide or monitor services.

Turkey is a developing country with a growing economy. In the last 10 years gross domestic product almost doubled to 735 billion USD[5]. However, employment rate is low. In 2010 total employment to population ratio is reported 47.5%, which has an OECD average of 67.3.[5] A striking fact is that the ratio is 26.9% for women, which is 58.8 for OECD. [5] Labor force participation in Turkey and in the OECD countries are, 53.9% and 73.4% respectively.[5] Low labor force participation may explain low employment rates, to

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[4] World Bank, 2010
[5] in current US dollars. source: World Bank, World Development indicators, 2011

some extent. However, unemployment remains to be a problem. 2010 unemployment rate is reported as 11.9 for Turkey. OECD average is 8.3.[6,7] In 2011, unemployment rate declined to 9.2. For women it is reported as 11.5%.[8] Looking at the labor statistics, gender disparity and regional disadvantages can be seen easily. Unemployment rates of the statistical regions are presented in Figure A.1. Highest values are in İstanbul, Ortadoğu and Guneydoğu Anadolu. Unemployment rates for women are higher than for men for most of the regions. However, eastern regions show significantly lower rates for women. This is mostly because women labor force participation is lower in eastern regions of Turkey, which has the highest rural population (Figure A.2). In rural regions, women are usually responsible for household chores and children. This may explain why they do not participate in work force.

In 2010, Turkey had a per capita GDP (with purchasing power parity) of around 10 thousand USD[4], which has a rapidly increasing trend since 2000s. Looking at the differences in per capita GDP, poorest regions are located to the east and southeast of the country (Figure A.3). Most of the business and industry, which brings the highest financial resources, are on the western regions; İstanbul, Doğu Marmara, Batı Marmara, Batı Anadolu, Ege. North and middle parts of the country; Batı Karadeniz, Orta Anadolu, Doğu Karadeniz have agriculture as the main sector. Tourism is popular in the coastal regions of south and west; Ege, Akdeniz mostly for summer holidays. In the mountainous areas of the east, especially Kuzeydoğu Anadolu, winter sports attract tourists. Middle, eastern and southeastern regions; Orta Anadolu, Kuzeydoğu, Ortadoğu and Guneydoğu Anadolu are usually engaged in agriculture and breeding.

There is a recognizable diversity in economic conditions among regions. Economic disadvantages and rural life style also result in lower health outcomes. Regional Differences show on the major macro health indicators. Eastern Turkey has the highest

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[6] http://stats.oecd.org/Index.aspx?DataSetCode=LFS_SEXAGE_I_R
[7] Different sources have different rates. European Union Reports 10.4 for 2010.
[8] http://tuikapp.tuik.gov.tr/isgucuapp/isgucu.zul

infant mortality and fertility rates. The differences are two or even three folds (Figure A.4, Figure A.5)

1.1.1 Education and Girls: World and Turkey

United Nations millennium development goals, Number 2: "Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling."

The goal of "Universal Primary Education" is adopted by most of the countries around the world and some efficient steps are taken. Public and political awareness increased and a lot of financial and intellectual resources are poured towards education issue. Responding to the attention, primary completion rate rose from 81% in 1999 to 88.5% in 2009. The completion rate for girls show a greater rise from 78% to 87%, but it still falls behind the rate for boys, which is at 90%. 80-90 percent looks promising but some parts of the world has even lower primary completion. In sub-Saharan Africa, primary completion rate is 67% for all and 63% for girls. Turkey has relatively higher completion rates compared to world. However, when compared to Euro Area, there is still a long way to go. This comparison is shown in Figure A.6. In 2008 Turkey's primary completion rate was 93% for all and 91.5% for girls. This level in 2008 is achieved from 86% in 1990s.

In 2010, primary enrollment rates in Turkey reached 98.4% for all and 98.2% for girls. However, education outcomes differ regionally. (Figure A.7) Exceeding the country average, İstanbul had the highest primary enrollment rates with 99.4%, but not 100%. Regional diversity shows in Eastern Turkey; Ortadoğu Anadolu, Kuzeydoğu Anadolu, Doğu Karadeniz, with lower enrollment. For Eastern Turkey is a region of mountains, lower economic development and conflicts; lower schooling and higher gender disparity is expected. Interestingly, only Kuzeydoğu Anadolu, one of the eastern regions shows higher enrollment rates for girls. Improvement in primary education can be seen when we compare the values in Figure A.7 and Figure A.8. In some regions, it was at 70-75 percent for girls. Recognizing this fast change, which is faster for girls, there is improvement we hope to see more in the future.

1.1.2 Primary Education in Turkey

Primary education is the basic education that is regulated by National Basic Education Law, last updated in 1997. The law states that every child between ages 6-14, boys and girls alike, should be enrolled in primary education, which is 8 years compulsory education. 8 years of education divided into two stages. First stage of the primary education is 5 years basic education and second stage for 3 years has a more sophisticated curriculum.

The Primary Education law as stated in the articles 55, 56, 57, enforces school attendance. Article 55 states that, "Parents or guardians or heads of the family who do not send students to school, who do not abide by the time permission granted, who make transfer late, who disappear without a trace by going beyond the proximity of school, or who do not inform the school administration on time without an excuse about the non-attendance of the child are to be reported to the office of the muhtar[9] in villages and to the district authority in other places immediately. Muhtars and district officers ensure communication of this situation to the parent or guardian or head of the family within a maximum of three days." If the family fails to comply with this statement or persuade the school administration with the reason for the child's not attending the classes, an administrative fine will be imposed.

The last update on the fines have been made with the enactment of the bill prepared by the Turkish Grand General Assembly in accordance with the basic criminal codes and debated as "Basic Code". With this law an administrative fine of 15 TRY[10] will be imposed for each day that the child does not attend school, a fine of 500 TRY will be imposed on those who do not send their children to school or who do not inform the school administration about reasons for not doing so, in addition to 15 TRY. Also, if one does not comply with the rules an additional fine of 400-1000 TRY will be imposed.

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[9] village head
[10] 1 TRY = 0.66 USD in January 1st 2010

Primary education in Turkey is provided in public schools and in private schools. It is free of charge in public schools. Both public and private primary education institutions may provide boarding school services. Day schools are also provided by the public schools to meet the demand by students who are above the primary education age. Distance (open) primary education is also provided by the state to ensure accessibility of all Turkish citizens. Distance primary education, introduced by the implementation of 1997 Basic Education Law, especially targets the population who has completed their 5 years compulsory education, (5 years compulsory education is the previous Basic Education Law), and did not go further, to complete their 8 years compulsory education. The classes are given on the National TV channel TRT's education branch but no physical classes are provided by the state. The class material is, also, provided and there are regular national tests on the material. In addition, special education is provided for those with visual, hearing, orthopedic, mental, linguistic and speaking disabilities. Special education has a similar curriculum with the national primary and secondary education levels but adjustments made according to the disability.

Accessibility is a major issue in the less populated and sparsely settled rural areas. The state addresses this problem by the boarding schools as well as transport education. Transport education is launched in 1990 with 2 provinces and the students in almost 100 provinces benefit from the program. The program aims to reduce the number of schools with combined classes and offer more qualified education for all students. Up to this aim, everyday students are taken from their homes and transported to central schools and taken back to home when the day is over, for free.

1.2 Background

Summarizing the country overview:

- Turkey is one of the most promising developing countries with fast and stable growth but it still falls behind the developed countries of the OECD.
- Economy is growing but rural regions are economically disadvantaged.
- Rural regions are disadvantaged not only in terms of economy but also in terms of key social indicators like education and health.

- Women's status in society needs to be improved. High unemployment rates and low labor force participation is a concern for future development goals.
- Gender gap in education is closing rapidly but it remains to be a problem especially in the eastern regions, with high rural population.

This section focuses on the literature on girls' education. First, I will explain the impact of girls' and females' education on economy and society. Then, reasons why girls' education outcomes are lower than that of boys and the factors affecting girls' education are explained. Finally, potential interventions and efforts to increase girls' education are discussed.

1.2.1 Impact of Girls' Education

Impact of education is studied from different perspectives. World Bank's view of education as an input to human capital can be considered as the most popular one as many studies have used educational attainment as a proxy for human capital (Barro and Lee, 1993). Educated people are more productive than uneducated people. From the human capital perspective, education becomes a factor that increases the efficiency and quality in the production process. Education adds to productivity and efficiency at home, too. (King and Bellew, 1989) When the household members are educated even the household chores and distribution of earnings can be done better. Impact of women's education on human capital can be explained with the above-mentioned factors as women make 50% of the total population and any effect to increase human capital will have the same impact with the women, in the simplest view. From another point of view, as studied by Berhman et al (1999), impact of women's education on human capital comes with their effect on future generations. Even if educated women are not actively participating in the work force, they will become knowledgeable mothers and teachers for their children. So educating women has an additional impact in the form of "future human capital". When the effects of women's education in terms of having better jobs and earnings are considered, higher earnings of mums mean higher investments on children. Then again "future human capital" is positively affected. This indirect impact of women's education on human capital is introduced in Berhman et al's study on agricultural productivity in India. Even when women are not participating in the

agricultural work force, women's education is a significant factor for explaining the increases in the productivity.

Human capital approach is more popular in economic studies because it is more focused on the society than on the individuals. There is another approach to education, which is adopted by Sen and Nausbaum. Capabilities approach focuses more on the person herself. This approach has the vision that education promotes the ability to lead a life. By education, a person acquires a mentality to value and enhance her substantive choices. (Kuenning and Amin, 2000) Capabilities approach is important for a person to become a better and more effective member of the society. We want women to have significant roles in the society and make their own choices. For example, early age marriages usually happen without considering the girl's decision. Even when she agrees to marry it is possible that she did not have a chance to experience or think of other opportunities she may have. Education is able to give this chance. Early marriage also results in not working or pursuing less productive jobs if the girl did not continue studying after the marriage. When the enrollment rates increase, it is expected that marriage age will increase as well or at least fewer girls will marry at the adolescent ages. According to Kuenning and Amin's study, in men dominant cultures, women do not have control over their environment, or they should submit to men. In such societies, women's empowerment idea may not be the best way to persuade people towards girls' education.

We can see the impact of primary education on health outcomes. Infant mortality, child's health and nutrition and fertility have strong relations to mothers' education. These health outcomes are the significant factors for building a healthy and productive society. This is why they are often used as indicators of development. Tietjen (1991) mentions that educating girls results in lower fertility and infant mortality, also, better child health. Impact of girls' education on fertility can easily be explained by the fact that girls are not marrying at young ages and they allocate more of their time to school (Jejeebhoy, 1995). Education also, affects the behaviors and perspectives of life, leading to being more considerate of family planning and preventing from making quick decisions on giving birth. Hobscraft (1993) studied correlation between mothers' education and child mortality until the age of two. Impact of mothers' education is significantly higher when compared to other factors like father's education and fathers' occupation. Caldwell

(1990) claims that child's mortality can be better predicted by mother's education than the family's income or quality of health services. He also states that infant mortality is highly correlated with the proportion of females in school one generation earlier.

1.2.2 Reasons of Lower Education Outcomes for Girls

The issue of girls' and women's education has a long past. In 80s and 90s a large amount of research is done on girls' education. Even so, reviews suggest that there is little systematic research that applies qualitative or quantitative research methods.

In 1991, Karen Tietjen has prepared a report for USAID. In her report she provides a framework for analyzing the reasons why girls are under educated. She lists the factors that affect girls' education under three main classes: macro-level societal factors, supply side factors and demand side factors. Macro-level societal factors are; national wealth, population, industrialization, development, urbanization, religion, etc. Supply factors are education system and school factors, which can be listed as curriculum, school infrastructure and equipment, number and ability of the teachers, student density etc. Tietjen points out that while the supply factors are effective on keeping the girls in school, demand factors are the ones affecting the enrollment decisions.

Demand side factors are social and household factors. In Tietjen's report, status of women in the household and the community, household income and size, education level of the household members etc. are considered important. Education outcomes for girls are especially low for culturally men dominated societies. Norms and practices in these societies do not let women's empowerment. Kuenning and Amin (2000) studied the Bangladeshi women. They argue that families set marriage as the major goal for their girls. In Bangladesh, women should always be less educated than men not to destroy the household stability. Some families prefer educated brides as they will become better mothers and be well mannered. Besides, women's education may be preferred to become prepared if an economical hardship occurs for the household. So, even if the girls are sent to school, the society do not see schooling as a way to empower women but for girls to become better marriage candidates. El-Sanabary (1989) studied female's education in a similar way to Tietjen with macro-level factors (culture, economy etc.) and micro-level factors (school and household factors), but he focuses more on the effect of cultural

differences on women's education. His study is based on 7 Middle-Eastern and North African countries; Egypt, Tunisia, Morocco, Jordan, Turkey, Saudi Arabia and Kuwait. All these countries have Muslim dominant populations and he claims that there is a global tendency to think that women are more disadvantaged in the Muslim countries in terms of education. According to his findings, economic factors have much bigger impact than the cultural and religious factors. He mentions that even if all these countries have Islamic backgrounds, educational attainments show differences. In this study, I used province and time fixed effects in order to account for the variability across regions and time periods.

Connely and Zheng (2003) study school enrollment and graduation rates in China. According to their findings, changing economic conditions affect returns to education and opportunity cost of staying in school, thereby, affecting enrollment and completion rates. Impact of parents' education is positive. Availability and quality of education, also affect education choices, mostly in relation to the location factors. The most effective factors are location of residence and gender. Rural residence has the largest negative impact. In the urban areas, about three fourths of the children are in school, but the proportion is only about half for the rural areas. Gender is the second most effective factor. It is known that there is a cultural tendency in China to favor boys. In the rural areas, girls are thrice disadvantaged in school attainment than boys. Even in the urban areas there is a strong gender preference for boys. They also mentioned that government policies, especially on the years of compulsory education, have a big impact. Another earlier study by King and Bellew (1989) also shows lower values for rural regions and for girls. They used birth cohorts to account for the historical events that might influence school enrollments. They were able to capture different patterns of enrollment for different cohorts. It can be concluded that year effects are important if there are historical events to effect educational attainment. Parental background is a factor that they saw as a significant impact. Results show that parents' education is effective on the children's education but father's education has a bigger impact on boys' enrollment rates. For girls; education of both parents has the same impact. From here, they conclude that fathers have a tendency to send the boys to school instead of girls. Another factor they have considered is school characteristics. Availability of instructional materials, number of grades offered, class

size and number of teachers are all found to have significant positive impacts on enrollment, with a slightly lower coefficient for girls.

Education outcomes are always more volatile for girls, being more influenced by economic and social factors and changes. Leon (2010) studied impact of civil conflict on educational attainment, as a proxy for human capital. Being exposed to political violence results in at least 0.12 years drop of attainment. This value is always higher for women. Handa (2002) also, explains that armed conflict has a big negative impact on schooling especially if it involves destruction of infrastructure. Civil conflict is a fact for Turkey, especially for the eastern regions. Even if impact of conflict is not studied in this research, it is relevant for explaining the need for region fixed effects. Conflict in Turkey does not involve mass destruction or destruction of roads and buildings etc. as to destroy the resources for getting education but it results in uneasiness among society in terms security concerns or trust to government.

Location and gender issues in education open a wide area for the problems of access and equity as stated in a recent study by Shahzad et al. (2010). Their research covers the availability of primary schools, reasons of dropouts and parents' and teachers' perspective on the access and equity of education in Pakistan. The study is based on two questionnaires about the state of education. A panel of two hundred parents and teachers were questioned. Only analysis provided in the study is by comparing the answers in the questionnaires, so there is a high possibility for bias and unreliability. However, it is a valuable study in terms of showing the state of education and people's perspectives on educational improvement. Current status of the education in Pakistan shows fast growth and development. Educational equipment and facilities has improved and numbers are increased; however, number of school buildings is still not enough, especially in the rural areas. There are problems in primary enrollment, especially for girls, and illiteracy rate is increasing. Mostly emphasized problems are; unavailability of schools and teachers, security, cost of education, poverty and illiteracy. The authors list important policy implications to solve the problems of Pakistan's education system. Some of them are; increasing the number of primary schools, improving the physical conditions of schools, reducing the cost of education and focusing on gender disparity.

1.2.3 How can we increase attainment?

Tietjen (1991) gives a comprehensive review of policies, interventions and studies on girls' education in her report. Universal Primary Education and Compulsory Education policies did not give good results in every country. Universal Education has increased disparity in many countries. Boarding schools had positive or no effect on attainment. Policies on increasing the number of female teachers usually have positive impact but there are some countries where negative effects are observable. Incentive programs always had positive impact on education, both on attainment and achievement. As mentioned in Tietjen's study, factors influencing education outcomes are classified as macro-level societal factors, education system and school factors, and social and household factors. Girls' education is closely related to macro-level economic indicators; GDP growth, increased productivity, women's labor force participation, health etc. (Kane, 2004). In this study I use per capita gross domestic product as a macro level indicator. Macro level factors are not expected to change immediately by any intervention; they change over time. If we want to have immediate, effective results on education by policy intervention, we should focus on the policies affecting the education system or schools, and people. Population, too, has an indirect impact on educational attainment in relation to the supply factors. This impact stems from the strain it puts on the educational resources (El-Sanabary, 1989).

Education policies are usually more effective on the disadvantaged groups be it negative or positive. Even if the policy is not focusing on a certain disadvantaged group, for instance, if it has a positive impact on attainment, then it is expected that girls' attainment will be affected more than boys' attainment and rural attainment will be affected more than urban attainment (Kelly, 1987). In Glick's study (2008) on the policies to reduce gender gaps in schooling, this phenomenon is shown with an analysis of returns to schooling for both genders. Policies towards decreasing the cost of schooling or increasing the benefits for schooling results in higher enrollment rates for both girls and boys. However, the increase in girls' schooling is much higher than in boys' schooling. This is because marginal benefits curve declines more rapidly for boys than it does for girls (Glick, 2008). However, if the policy has a side that only the advantaged groups will benefit from, then the scenario is different. For example, if the authorities made a change

toward encouraging technology utilization and teachers start to give computer-based assignments, students from poorer families may be affected negatively because availability of computers is a problem for them. Policy makers should consider the target group carefully and shape the new policies accordingly.

Supplying education equipment, improving the quality of education system and improving the schools' physical conditions result in increased enrollment for both boys and girls. Handa's (2002) study emphasizes the importance of quantity. When the number of schools increases then the availability will increase and the demand for education will be matched. Teachers are the main inputs to education system. So, number of teachers in the system also has an impact on education. School to pupil ratio and teacher to pupil ratio are important measures for quality of education, which lead to an increase in enrollment rates. These ratios are significant when the numbers are scarce such that the availability of education stands as a problem. In this study, I examine the supply side factors with "school per school age children". It is expected that if there is a need for schools, when more schools are provided to the education system, then the enrollment rates will be higher. Policies towards increasing education resources and equipment have a significant role in schooling. Glick (2008) has exemplified some of these policies affecting two types of aspects of schools as stated in Lloyd et al (2000); aspects that are similar for both genders and that are different for each gender. Similar aspects are general school characteristics; teacher quality, supply of blackboards, mid-day meals etc. These "similar aspects" turned out to have greater positive impacts on girls' enrollment rates, related to the marginal benefits idea explained in the previous paragraph. Also, the reason may be that girls' learning is affected more with the education quality and parents tend to respond to better quality by not taking their girls' out of school. Teacher attitudes towards boys and girls, female teachers, curriculum and textbook material that gives more importance to boys, sexual education programs to prevent from early pregnancies, separate toilets etc. are considered as the "different aspects" for boys and girls. Improving these characteristics of schools and education system will also result in higher enrollment rates for girls.

In 2006, UNESCO has performed a study specifically focusing on the impact of female teachers on girls' education. The study highlights the impact of female teachers as role

models and their advocacy for girls at school. Also, some families do not want their girls to be taught by male teachers, which eventually adds to the importance of female teachers. As also mentioned in Handa's (2002) study, female teachers are an influential factor in increasing attainment for girls, especially in the rural areas. Since increasing the number of female teachers is another important policy towards increasing girls' schooling, I examined the impact of the proportion of female teachers in the total number of teachers, expecting to see a positive relation between girls' enrollment rates and the number of female teachers.

As recorded in the literature, quantity only is not adequate for quality (Duflo et al 2009, Dearden et al 2002). If the numbers are sufficient or more than the required amount, then they will not have an impact on increasing the enrollment rates. In addition, over supply of schools and teachers without considering the qualifications will result in under qualified education eventually decreasing the enrollment rates.

Educating girls is sometimes very dependent on the families' perspective on girls' education. Household factors are influential on the first decision to send girls to school. When the families think that returns to educating girls are not much, or quality of education is low or if the student is not getting good grades then they do not send her to school. Policies that may change families' point of view like door-to-door campaigns and public awareness campaigns often turn out to be effective. "Haydi Kızlar Okula!" project has a public awareness focus. So studying this project gives an idea to what extent these actions are effective and gives the chance to question the effectiveness of its application.

Literature shows that household characteristics like income and parents' literacy influence girls' education. Interventions on household characteristics have a significant impact on education outcomes; decisions for or against educational attainment, completion rates and even increasing students' grades. Gender disparity is considered as an inferior good because girls are sacrificed first when the income is low. When income raises it is not a problem for the families. Besides, girls' education may be more costly in terms of clothing and transportation (Herz et al, 1991). Policies towards increasing household income are studied by many scholars. These policies usually involve incentive programs under certain conditions focusing especially on the poorest households such

that the reason for not sending the child to school is lack of resources. The incentives are usually provided in the form of either money or food. In incentive programs for increasing educational attainment, families are conditioned for enrolling the child or sending her to school for a certain percentage of the school time. In Ravallion and Wodon's study on the Food for Education Program in Bangladesh (1998), the families were supplied with food, conditioning the supply on school attendance. As a result, attendance rates increased. Researchers usually face endogeneity problem when evaluating the impact of incentive programs. The selection of the family depends on the welfare outcomes. When the program is applied, children of the selected families enroll to school and school enrollment has a positive impact on welfare. The endogeneity problem comes from the selection of families, namely individual placement. Ravallion and Wodon claim that decentralization may help solving this problem. When they used geographic placement in place of individual placement, under estimation of the effect of food supply is taken care of: 100 kilos supply of grain increases the attendance rate by 0.21, which was 0.13 before using geographic placement. This is because the amount supplied to the local administration is directly correlated with the amount supplied to the families but it is not correlated directly with enrollment of a student from a family that has received incentive. Using city level data for measuring the impact of incentives may be better than using household level data. In another study on incentives, by Barrera-Osorio et al (2011), authors claim that every conditional cash transfer (CCT) program has a significant impact on education outcomes however some programs are more effective. They compare three different incentive schemes. First scheme is the basic CCT model proposed as similar to PROGRESA, which is one of the most popular Mexican CCT programs. It involves bi-monthly payments for "good attendance". Second scheme is a treatment model, which aims to enhance family savings for the new enrollment year. In this scheme, families are paid two-thirds of the "good attendance" payment in the same manner (bi-monthly) but they are paid the remaining as a lump sum upon enrollment for next year. Third scheme provides the same "good attendance" payments but the remaining is provided as a lump sum upon graduation. As a result, every scheme showed similar impact on "attendance", 3-5 percent increase. However, treatment models were able to increase "enrollment rates" when first scheme had no impact. Second scheme

increased the enrollment rates by 9.4 percent while third scheme increased the enrollment rates by 48.9 percent. Incentives are widely used with a special focus on increasing girls' educational attainment (Khandker et al). In Turkey, an incentive program in the form of CCT has started with the project "Haydi Kızlar Okula!" in 2003. In this research, effectiveness of this incentive program and the "Haydi Kızlar Okula!" project are jointly examined and they are compared. Details of the project are provided in the next section.

CCT programs targeting enrollment rates usually do not consider school success, which is in fact very relevant for future human capital. Higher enrollment rates may result in lower learning outcomes when the resources are not allocated strategically. If enrollment rate increases more rapidly than "teacher to student" or "school to student" ratios, and vice versa, authorities may face declines in education quality. (Hasan, 2010; Baez, 2011) There is a possibility that the children who received CCT will perform worse than the rest. This is because these students possess lower socio-economic resources, accordingly, lower motivation and less time devoted to the schoolwork. These students may eventually decrease the average learning outcomes. Also, since target families of the CCT programs are from poorer or rural regions of the country, learning outcomes may be lower according to lower school and teacher quality in those regions (Baez, 2011). In his study on the CCT program of Colombia, Baez found that the CCT program was successful in increasing the enrollment and completion rates. However, the students who are receiving CCT and who are not receiving CCT but from equally disadvantaged backgrounds got the same average test scores. Meaning, CCT does not have a positive impact on learning outcomes. But still he concluded that long-term effects of more education years, even if learning outcomes are not better, is expected to reflect as higher human capital gains.

Glick (2008) has explained the policies towards increasing schooling in two groups to analyze gender gaps: gender-neutral policies and gender-targeted policies.[11] By gender-neutral policies, he meant the policies toward increasing overall enrollment rates. Colombia's national voucher for private schools is one of the policies mentioned (Angrist

[11] This explanation is similar to Kane (2004)

et al, 2002). This program chooses students with a lottery system, which provides the random selection. The result of the study shows that girls had better school attainment and test scores. Another policy mentioned is Mexico's PROGRESA project, providing the same inducements to the families for sending boys and girls to school. This project also resulted in significantly better outcomes for girls (Schultz, 2004). He then emphasizes that in the studies performed in Nicaragua, Ecuador and Brazil, where girls are not disadvantaged in terms of schooling, the outcomes of policies like PROGRESA were the same for each genders. In countries where school enrollment is financed by families, policies towards removing or reducing the school fees resulted in raising the enrollment rates, higher for girls. These gender-neutral policies that are studied by different scholars and mentioned in Glick's study, show positive impacts on schooling, which is greater for girls in almost all of them. As gender-targeted policies, he examines the projects specifically aiming to increase girls' schooling. One of the policies mentioned in his study is the Food for Education program in Bangladesh that is explained above. One interesting policy was studied by Kremer et al (2004). For a randomly chosen group of schools in Kenya, girl students who are successful in the examinations were paid scholarship and the schools were paid for the attendance and success of these girls. As a result, girls' attendance and scores raised and teachers' attendance has increased as well. There were also spillover effects as increased attendance and higher grades for girls, who are unlikely to get scholarships, and for boys. It can be said that, policies incentivizing schools also work, as well as the incentive programs for families.

Kane (2004) mentions that multiple interventions result in higher schooling. Rather than implementing only one project, approaching the education system from different angles with implementing the above mentioned projects; constructing new buildings, improving the water supply and latrines in schools, supplying more female teachers and providing incentives, all together and by doing so, improving the education resources for girls from every perspective will give better results. She further mentions that the programs that involve community participation gave better outcomes. Community participation may be achieved by drawing families into the education system, i.e. by making them more active on school administration. It can also be achieved by drawing the local financial resources, firms and organizations, into the education system for school construction and donations.

She also addresses to the interventions, which do not consider the families' welfare, cultural preferences and country specific factors, and indicates that they did not work.

Handa (2002) found that adult literacy and education of household members have a greater impact than income factors. Female literacy has an even greater impact. Interventions for increasing the household income may have significant impact on girls' education but importance of adult literacy should also be considered carefully. He further analyzes specifically the impact of adult literacy programs. Villages with an adult literacy program, even if the program is not recent, had around ten percent higher enrollment rates than the villages without a program. He also, claims that adult literacy programs are ten times more cost effective than the household income raising programs. I have introduced variables for adult literacy in my model. First, the impact of female adult literacy and total literacy are compared. Then, total adult literacy is used as a regional factor in the model.

1.3 "Haydi Kızlar Okula!": The Girls' Education Campaign in Turkey

In 2003, the "Gender Review on Education in Turkey" found that 640 thousand primary education age children are not enrolled in school and 61% of these children are girls. Confirming the gender gap in education encouraged the Turkish Ministry of National Education (MoNE) and UNICEF to start the girls' education project "Haydi Kızlar Okula!". It is started in 2003 with 10 provinces and spread to 81 provinces by 2006. The project targets the girl students between the ages 6-14 and their families and aims to remove the obstacles that prevent the girls from enrolling to school and attending to classes.

The Gender Review Analysis of 2003 determined girls' enrollment and dropout rates at province and district level[12]. According to the analysis, the project has been implemented gradually starting with 10 provinces with the lowest rates of enrollment and highest rates of dropouts. The implementation followed a gradual expansion with adding 23 provinces

[12] District is an administrative level under province.

in 2004, 20 provinces in 2005 and the remaining 28 provinces in 2006. By 2006 every province in the country was exposed to the project.

Here, I divide the strategy of the campaign into two groups:

Country level strategies:

- Publicized government and media support
- Regular updates about the campaign in the UNICEF-Turkey newsletter "Say Yes"
- Free textbooks for all students
- 100% tax credit to private and corporate donors who invest in education

Province level strategies:

- Informing the provincial and district level administers for support
- Training and supporting volunteers, teachers, and frontline workers
- Launching an intensive door-to-door campaign prior to the new school year
- Mobilizing students for identifying and encouraging peers who are not in school
- Implementing a Conditional Cash Transfer program by the Social Solidarity Fund (SDYTF)

First set of strategies is for the whole population. So, they are only effective for the variation in girls' enrollment across years. The gradual implementation mentioned above is conducted by the second set of strategies. In scope of this research, I will emphasize more on the province level strategies in order to see the variation both across years and across the provinces. First four points of the province level campaign concerns social mobilization achievements.

Conditional Cash Transfer (CCT) Program has been started with the girls' education project in 2003. However, it does not follow the same expansion pattern. In 2003, CCT Program has been implemented in certain districts in 25 provinces. The provinces are not the same as the ones in the first or second year of the girls' education project. After 2004, every province was exposed to the program. In order to apply for CCT the family should

be considered poor; with no social insurance and no financial assets or income enough to afford the education of children.[13] Also, the family needs to have children between ages 6-17. After the application is assessed by the SDYTF, there are conditions for receiving the CCT; family has to send their children to school at least 80% of class time every month, has to inform the closest SDYTF branch about the class or address changes and the child should not be expelled from school.[14] Most recently stated amount of CCT is 30TRY for male and 35TRY for female students.[15] The stated amount is an average. It changes according to family's financial conditions and child's age.

[13] Conditions for being considered for social funds is regulated by Law No. 3294: Social Aid and Solidarity Promotion Law

[14] The information is taken from the SDYTF Conditional Cash Transfer booklet (in Turkish) published on its webpage: http://www.sydgm.gov.tr/tr/html/243/Yayinlarimiz/

[15] SDYTF - Directorate of Relief: http://www.sydgm.gov.tr/tr/html/265/Sartli+Nakit+Transferi/

2 DATA

This part of the report will define and describe the variables of interest. A brief representation of the research model is:

$$Primary\ Enrollment\ Rate = f(EconomicFactors, RegionalFactors, EducationFactors, Policies)$$

A detailed description of the model is provided in the "Model and Results" section.

Primary Enrollment Rate will be called as PER from this point on. The policies that will be examined are "Haydi Kızlar Okula!" project and conditional cash transfers. They will be called HKO and CCT throughout the text.

Data collection is done in September-November 2011. Majority of the data is collected from online resources. Relevant institutions are contacted if necessary. Contacted institutions are; Ministry of National Education, Hacettepe University Institute of Population Studies, Ministry of Health Mother-Child Health and Family Planning Directorate. Main resources for the data are[16]:

- MoNE: Turkish Ministry of National Education's (MoNE) official yearly statistical reports[17]
- UNICEF: UNICEF[18]
- TurkStat: Turkish Statistical Institute's online Regional Statistics database[19]
- DPT: Turkish State Planning Agency's (DPT) Public Investment Database[20]
- EuroStat: European Commision's online Regional Statistics database[21]
- CCT: Ministry of Family and Social Policies, Directorate of Relief Report[22]

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[16] Throughout the text, databases will be addressed with the corresponding database names as listed above.
[17] http://www.meb.gov.tr/english/indexeng.htm
[18] http://www.unicef.org/turkey/pr/ge6.html
[19] http://tuikapp.tuik.gov.tr/Bolgesel/menuAction.do?dil=en
[20] http://www.dpt.gov.tr/kamuyat/ilozet.html
[21] http://epp.eurostat.ec.europa.eu/portal/page/portal/region_cities/regional_statistics/data/database
[22] http://www.sydgm.gov.tr/tr/html/265/Sartli+Nakit+Transferi/

The data is collected for 81 provinces of Turkey between the years 2000 and 2010. 2000 and 2010 data are not used in the analysis because majority of the variables of interest are not available for these years. So, the data used for analysis captures 2001-2009 period. In general, there are 729 data points for most of the variables. Descriptive Statistics for the data are provided in the Table 2.2 below. The data is explained in detail in the following sections.

2.1 Nomenclature of Territorial Units for Statistics: NUTS[23]

NUTS classification was put in progress in 1970 by the European Commission's Eurostat. It divides the EU's territory into statistical regions. The classification is designed for the collection, development and harmonization of the regional statistics, socio-economics analysis purposes and to frame the regional policies. The legal status has been negotiated since 2000, been achieved in 2003 and accepted by the EU member countries. The regional codes has to be stable for at least 3 years and required changes may be made every 3 years according to the updates from the countries.

The classification has 3 levels that are determined by the administrative regions and general geographical units defined by the state. The NUTS level codes have to comply with the population thresholds given in Table 1 below.

Table 2.1: NUTS levels and thresholds

Level	Minimum	Maximum
NUTS 1	3 million	7 million
NUTS 2	800 000	3 million
NUTS 3	150 000	800 000

For European Free Trade Association countries and the candidate countries Implementation of the classification is different than the EU member countries. Turkey has adopted the classification in 2002. Turkish State Planning Agency and Statistical Institute are the institutions in charge of regulating Turkish NUTS classification. NUTS

[23] Detailed information may be found in European Commission's Eurostat webpage http://epp.eurostat.ec.europa.eu/portal/page/portal/nuts_nomenclature/introduction

levels are presented on Table C.1. Corresponding regions for NUTS1 level are presented on the map with Figure C.1. Province data used in this study is at NUTS3 level.

2.2 Primary Enrollment Rate

Primary enrollment rate (PER) is calculated as:

$$Primary\ Enrollment\ Rate = \frac{Number\ of\ students\ enrolled\ in\ primary\ education}{Population\ between\ ages\ 6\ and\ 14}$$

Calculated PER here is the gross PER which accounts for all students enrolled in primary education, regardless of the age. "Number of students" data is available through MoNE for 2000-2010 for both genders. The data is given for an education year, which consists of fall of year "n" and spring of year "n+1". Year "n" is taken as the base year. So, for 2001-2002 education year, 2001 is the base year. Population data for age groups is available in TurkStat for 2000 and 2007-2010 for both genders. Data for 2001-2006 is interpolated. PER is calculated with this data. Major outcome of interest is Girls' PER, which is calculated using the number of female students and number of female population between the ages 6 and 14.

Table 2.2: Descriptive Statistics

	Observations	Mean	Std Dev	Min	Max
Outcomes					
Girls' PER	729	0.8428	0.0860	0.5203	1.0194
Total PER	729	0.8601	0.0771	0.5406	1.0100
Economic Factors					
log of per capita GDP	648	8.5220	0.6994	6.9441	10.0199
Education investment ratio	648	0.1831	0.1437	0.0000	0.8004
Regional Factors					
Adult literacy (all)	729	0.8506	0.0837	0.5310	0.9610
Adult literacy (female)	729	0.7672	0.1263	0.2289	0.9356
Poor (=1 if a region's per capita is lower than per capita GDP of Turkey)	729	0.5542	0.4974	0	1
Education Factors					
School per school age children	794	0.0039	0.0016	0.0008	0.0101
Policies					
HKO (=1 if the project is implemented)	729	0.5652	0.4961	0	1
logCCT (log of the amount of CCT paid)	511	13.8094	1.4546	8.3710	17.0736

2.3 Factors Affecting Primary Education Outcomes

This research examines the impact of HKO on Girls' PER. In order to capture this impact control variables are introduced into the model in the order given in Table 2.2. In order to build a linear regression model the variables are first examined to see their linear relationship with girls' primary schooling. Required transformations are made to fit the variables in the linear model.

Economic factors are per capita GDP and education investment ratio. Per capita GDP data is imported from EuroStat. This study is based on NUTS3 level data (i.e. province level) but GDP data is not available at the NUTS3 level. It was given in NUTS2 level, which is more aggregate. I used the NUTS2 level per capita GDPs, assigning the same per capita GDP to the provinces in the same NUTS2 sub-region. Data is available for the years 2001 and 2004-2008. For the years 2002 and 2003, data are interpolated to use in the analysis, assuming that there is no big shock that will impact the per capita GDP growth.[24] GDP here is in USD per inhabitant with current prices.[25] Education investment ratio is the ratio of education investment to total investment. Improvement in the education outcomes resulting from financial support should be captured since it is likely to be significant. Investment data is imported from DPT database. It is available for the years 2000-2008. Education investment used here is the overall education investment capturing primary, secondary, and higher education.

Regional factors are introduced in order to capture the impact of socio-economic level of provinces. In this study adult literacy is used as the literacy for the ages above 15. If the general literacy was used, there is a possibility of reverse causality that might occur because it is expected that primary schooling will increase the literacy for the age group 6-15. By taking only the above-15 literacy as an independent variable, this possibility is minimized.

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[24] The effect of 2002 global crisis is not considered in this interpolation. So, the model may over estimate the effect of per capita GDP because the actual GDP growth rate may not have been captured.

[25] Eurostat publishes the per capita GDP data in the unit: euros per inhabitant. They update the dataset every February to current market prices. So, the GDP per capita values are converted to USD per inhabitant with the January 1st, 2010 exchange rates. 1 EUR = 1.3385 USD in January 1st 2010

$$Adult\ literacy\ = \frac{number\ of\ literate\ with\ ages\ greater\ than\ 15}{population\ with\ age\ greater\ than\ 15}$$

Adult literacy is calculated by the formula above with the number of literate and population data. Both are available in TurkStat for the years 2000 and 2008-2010. Missing data in between is interpolated assuming there is no big shock that will affect the literacy level of population in the time period 2001-2007. Female adult literacy is calculated with the same method using number of literate female and total female population data for ages greater than 15. In order to capture the impact of poverty a dummy variable "Poor" is introduced. Poor is equal to 1 if the per capita GDP of a NUTS1 level region is lower than Turkey's per capita GDP, and 0 otherwise. Poverty data as "the ratio of number of poor in the total population" is not used since the data is available only for 2006-2010.

Education factor is to capture the impact of current education resources on enrollment rates. The factor chosen is used as the indicator of availability of services. School per school age children is used to represent the education resources. Teacher per school age children is used as a robustness check for school per school age children. It is not reported in the results. Both number of schools and number of teachers data are available in MoNE for the years 2001-2010. The data is given for an education year, which consists of fall of year "n" and spring of year "n+1". Year "n" is taken as the base year. So, for 2001-2002 education year, 2001 is the base year. Number of school age children is available in TurkStat as the 6-14 population age group for the years 2000 and 2008-2010. The data is interpolated for the years 2001-2007. The variables are calculated by dividing the number of schools and teachers with the total number of children in the age group.

Policy indicators are the main independent variables of the model. The research focuses on the girls' education project; "Haydi Kızlar Okula!". Program start years are different for every province. The data of start year is collected for every province and a dummy variable HKO, which takes the values; 1 if the project is in process in a certain province at a certain year, zero otherwise; is introduced as a measure for estimating the impact of the project implementation.

The Conditional Cash Transfer (CCT) program has started in 2003 when the HKO project started. CCT program has a different implementation pattern than HKO. It has started in 25 provinces in 2003 and in the second year it is implemented in all 81 provinces. In order to estimate the impact of CCT, I have included the variable log CCT, measuring the amount of total CCT money paid to a province in one year.

3 MODEL AND RESULTS

Recalling the basic models from the previous part:

$$Primary\ Enrollment\ Rate = f(EconomicFactors, RegionalFactors, EducationFactors, Policies)$$

As mentioned before, education outcomes that will be examined in this study, are Girls' PER and Total PER. The model design is done based on the dependent variable "Girls' PER".

Characteristics of the relationship between the dependent and independent variables are examined by plotting each independent variable of interest against the dependent variable Girls' PER. Then the required transformations are made. The variables included in the regression model should not be highly correlated in order to have an unbiased estimation. The model is built considering correlations between the independent variables. Correlation matrix is included in the Appendix B, Table B.1.

I have started with the economic factors at province level, which are chosen as per capita GDP and education investment ratio. Both indicators are found significant in the random and fixed effects regression. When the year dummies are added per capita GDP loses its significance but it is not removed from the variable list since it does not change the impact of other variables. Total adult literacy is added as the regional control in the regression model. Then, school per school age children is added as the education control. Results are presented in Table 3.1. After running a Hausman test for the decision between random and fixed effects, it is decided that fixed effects regression will be used for further analysis.

As it was expected, an increase in the proportion of education investment in the total investment increases Girls' PER. Adult literacy also has a positive impact on girls' enrollment rate. Coefficient of "school per school age children" is greater than all other variables. This may be because the value of "school per school age children" is very small (Table 2.2). In order to compare the size of the coefficients in the model, I used standardized coefficients. In that case, the impact of adult literacy is found to be the largest and it is followed by "school per school age children". The impact of "school per

school age children" is almost ten times larger than the impact of per capita GDP and education investment ratio. The results are not reported here. I have not used "school per pupil" ratio because I do not want to look at the number of schools from quality of education perspective but I want it to measure the availability of services for the whole children population. Adult literacy and availability of schools have a greater impact on Girl's PER compared to Total PER.

Table 3.1: Base Model

Dependent Variable:	**Girls' PER**			**Total PER**
	RE	FE1	FE2	FE3
log of per capita GDP	0.0299***	0.0145***	0.00479	0.00365
	(0.00529)	(0.00503)	(0.0262)	-(0.0267)
education investment ratio	0.0598***	0.0554***	0.0354**	0.0419**
	(0.0197)	(0.0198)	(0.0178)	-(0.0184)
adult literacy (total)	0.775***	1.179***	0.907***	0.276*
	(0.0844)	(0.0872)	(0.135)	-(0.15)
school per school age children	9.700***	20.89***	24.18***	23.48***
	(3.254)	(6.518)	(6.298)	-(6.589)
Constant	-0.127**	-0.382***	-0.0791	0.471**
	(0.0617)	(0.0573)	(0.229)	-(0.235)
Year Dummies	No	No	Yes	Yes
Observations	648	648	648	648
Number of province	81	81	81	81
R-squared	.	0.603	0.773	0.713
Robust Standard errors in parentheses				
*** p<0.01, ** p<0.05, * p<0.1				

The number of teachers per school age children is used as a robustness check for the last model. As expected, the estimated coefficient of this variable is lower than the coefficient of "school per school age children" but the impact is positive and significant. The results for the robustness check are not reported in this text. Impact of female teacher ratio is also analyzed but the impact is found to be insignificant. The results for this analysis are not reported as well.

After building the base model, impact of female literacy is examined in comparison to total literacy. Total adult literacy is more effective than female adult literacy on PER. It is found that adult literacy in general (both female and total) is an important factor to

increase Girls' PER and its impact on total PER is lower than the impact on girls. The result for the impact of schools is examined further to see the impact on relatively poorer regions of the country. In order to see the impact of poverty, I have used the dummy variable "Poor" interacted with the "school per school age children". The results are presented in Table 3.2. Population of the regions with more financial resources is higher, mostly because of migration to these regions from poorer regions. As a result, school age children population is higher in richer regions and lower in poorer regions. So, fewer school buildings should be needed in poorer regions. However, it can be seen on the Model 2 of Table 3.2 that the coefficient for the "poor" and "school per school age children" interaction is positive. If the region is poor, building more schools will increase the enrollment rates. This means that the number of school buildings in the poor regions fall behind the required number. The problem here is that the coefficient of this variable is insignificant. Further analysis is needed to have a conclusion on this topic, which is not covered in this study.

Table 3.2: Impact of schools in poor regions and female literacy

Dependent Variable:	**Girls' PER**			**Total PER**
	1	2	3	4
log of per capita GDP	0.00479	0.00493	0.00333	0.00295
	-(0.0262)	(0.0154)	-(0.0266)	-(0.0269)
education investment ratio	0.0354**	0.0351***	0.0382**	0.0437**
	-(0.0178)	(0.0126)	-(0.0178)	-(0.0184)
adult literacy (all)	0.907***	0.909***		
	-(0.135)	(0.0702)		
adult literacy (female)			0.596***	0.155
			-(0.0988)	-(0.11)
school per school age children	24.18***	21.44***	23.95***	23.70***
	-(6.298)	(4.781)	-(6.474)	-(6.59)
poor×school per children interaction		2.960		
		(3.507)		
Constant	-0.0791	-0.0801	0.245	0.590**
	-(0.229)	(0.138)	-(0.223)	-(0.224)
Year Dummies	Yes	Yes	Yes	Yes
Observations	648	648	648	648
Number of province	81	81	81	81
R-squared	0.773	0.774	0.768	0.711
Robust Standard errors in parentheses				
*** p<0.01, ** p<0.05, * p<0.1				

After examining the impact of base model variables, I continued the analysis with the main focus of this study; policies for increasing Girls' PER. Last version of the model is:

$$Girls'PER = \alpha \log of\ per\ capita\ GDP + \beta\ education\ investment\ ratio + \gamma\ adult\ litereacy + \delta\ school\ per\ school\ age\ children + \epsilon\ \text{HKO} + \varepsilon$$

$$Girls'PER = \alpha \log of\ per\ capita\ GDP + \beta\ education\ investment\ ratio + \gamma\ adult\ litereacy + \delta\ school\ per\ school\ age\ children + \theta\ log\ CCT + \varepsilon$$

where Greek letters represent the coefficients and ε represents the error term. The model also includes two policy indicators, a dummy for a province having implemented the "Haydi Kızlar Okula!" (HKO) program and the amount of CCT at the province level.

Table 3.3: Impact of Haydi Kızlar Okula and CCT

Dependent Variable:	**Girls' PER**			**Total PER**	
	1	2	3	4	5
log of per capita GDP	0.00391	0.0249	0.0294	0.00267	0.0309
	(0.0265)	(0.0336)	(0.0268)	-(0.027)	-(0.0335)
education investment ratio	0.0360**	0.0642***	0.0611***	0.0426**	0.0657***
	(0.0179)	(0.0216)	(0.0161)	-(0.0185)	-(0.0231)
adult literacy	0.922***	0.628*	0.727***	0.293*	0.0493
	(0.133)	(0.319)	(0.151)	-(0.148)	-(0.322)
school per school age children	24.42***	15.81*	16.24***	23.76***	18.23*
	(6.289)	(8.435)	(5.876)	-(6.579)	-(9.467)
Haydi Kızlar Okula (=1 if the project is implemented)	0.0126**		-0.0680**	0.0141***	
	(0.00559)		(0.0337)	-(0.00519)	
log CCT (log of the amount of total CCT money paid to the province)		0.00814			0.00625
		(0.00764)			-(0.00752)
Haydi Kızlar Okula×logCCT interaction			0.00614**		
			(0.00252)		
Constant	-0.0853	-0.0774	-0.111	0.465*	0.405
	(0.232)	(0.403)	(0.289)	-(0.237)	-(0.405)
Year Dummies	Yes	Yes	Yes	Yes	Yes
Observations	648	430	430	648	430
Number of province	81	81	81	81	81
R-squared	0.776	0.780	0.785	0.718	0.757
Robust standard errors in parentheses					
*** p<0.01, ** p<0.05, * p<0.1					

Regression results can be seen in Table 3.3. The dummy variable HKO is first added to the model. Coefficient for this is 0.013, meaning; if the program is implemented in one province then 13 more girls are enrolled in primary school out of one thousand (Table 3.3, Model 1). The amount of Conditional Cash Transfer (CCT) money paid in a province is the second indicator for the project, represented with log CCT. Results show a positive but insignificant impact. When we look at the interaction variable of HKO and CCT we can see that CCT becomes statistically significant but remains to be practically insignificant. If the HKO is in process in one province then increasing the amount of CCT by 1% results in enrolling 6 more girls out of a hundred thousand. The models for Total PER show that spillover effect of the HKO is greater than the impact on Girls' PER. In conclusion, it can be said that public awareness part of the project has been more effective to increase total enrollment rates than to increase girls' enrollment; its influence is greater for boys. Coefficient for CCT is greater for Girl's PER but it is insignificant.

It is expected that the project had different impacts in poorer regions. This is why the interactions between the dummy variable "poor" and the policy indicators (HKO and CCT) are examined. Results are given in Table 3.4. It is found that coefficient for HKO is positive, significant and greater in the poor regions. Public awareness campaigns actually worked better for the poor regions. Impact of CCT is insignificant but positive for poor regions. A positive coefficient for "poor" and "logCCT" interaction means that if a region is poor more CCT will result in higher enrollment rates. It is possible that people in the poor regions respond to money incentives more than the people in richer regions.

Impact of girl's primary enrollment on marriage age, fertility rates and infant mortality rates are also examined but available data is not sufficient for regression and econometric analysis. These may be better addressed through survey data in future studies.

Table 3.4: Impact of Haydi Kızlar Okula and CCT in poorer regions

Dependent Variable:	**Girls' PER**		**Total PER**	
	1	2	3	4
log of per capita GDP	-0.00575	0.0183	-0.00918	0.0246
	(0.0160)	(0.0290)	(0.0164)	(0.0302)
education investment ratio	0.0347***	0.0627***	0.0411***	0.0642***
	(0.0125)	(0.0164)	(0.0128)	(0.0171)
adult literacy	0.843***	0.638***	0.200***	0.0500
	(0.0742)	(0.147)	(0.0761)	(0.153)
school per school age children	23.31***	15.62**	22.43***	17.90***
	(3.487)	(6.042)	(3.578)	(6.294)
poor	-0.00926	-0.00930	-0.0115*	-0.0189
	(0.00594)	(0.0698)	(0.00609)	(0.0727)
Haydi Kızlar Okula	0.000332		-0.000625	
	(0.00597)		(0.00613)	
poor×Haydi Kızlar Okula interaction	0.0187***		0.0224***	
	(0.00577)		(0.00592)	
logCCT		0.00808		0.00548
		(0.00600)		(0.00625)
poor×log CCT interaction		0.000160		0.000989
		(0.00528)		(0.00550)
Constant	0.0658	-0.0204	0.647***	0.459
	(0.146)	(0.292)	(0.150)	(0.305)
Year Dummies	Yes	Yes	Yes	Yes
Observations	648	430	648	430
Number of province	81	81	81	81
R-squared	0.781	0.781	0.725	0.758
Robust standard errors in parentheses				
*** p<0.01, ** p<0.05, * p<0.1				

4 CONCLUSION

This study aims to examine the effectiveness of the girls' education project "Haydi Kızlar Okula!" in Turkey, which mainly consists of community awareness and participation campaigns and incentives as conditional cash transfer. Girls' primary enrollment rate is the major outcome in the scope of the study. The results are compared to total primary enrollment rates.

Results show that implementation of the program increases both girls' enrollment and total enrollment. Girls' primary enrollment rate increased by 1.3×10^{-2} units and total primary enrollment rate increased by 1.4×10^{-2} units when the "Haydi Kızlar Okula!" project has been implemented. These impacts measure the effectiveness of public awareness and public movement focused interventions. This aspect of the project was successful but appears to be more effective for boys. Also, the impact of the project is positive and significant if a region is poor. Impact of conditional cash transfers (CCT) is found insignificant but positive. When the amount of cash is increased by 1% then girls' enrollment rate increases by 8×10^{-5} units and total enrollment rate increases by 6×10^{-5} units. Conditional cash transfers have a positive impact if the region is poor but the coefficient is still insignificant.

Overall, the project was successful but the magnitude of its impact is lower than expected, considering the increase in Girls' schooling since the implementation of "Haydi Kızlar Okula!" project (Figures A.6, A.7 and A.8). Apparently, this increase cannot be fully explained by the implementation of the project. The project only explains sending 13 girls to school out of one thousand girls. Now that schooling has reached 90%s, and the difference between total schooling and girls' schooling is at most 0.4 percentage points (Figure A.7), it is even harder to increase the enrollment rates. Public awareness may not be the problem anymore and different measures must be taken for different regions. Apparently, lack of schools and teachers is a big issue in Turkey. More schools should be built and more teachers should be provided in order to match the demand. The need for additional school buildings in the regions with lower per capita GDP is greater.

Location of investments should be considered carefully and more resources should be directed to the poorer regions.

Low impact of CCT in increasing girls' and total enrollment rates is a sign showing the need for the improvement of CCT program. Higher effectiveness may be achieved by redesigning the CCT schemes. As mentioned in Barrera-Osorio et al's study (2011), allocating the amount of cash to the time of completing the grade or enrolling in the following year can be more effective than the basic scheme, where the cash is paid for only monthly attendance.

Impact of adult literacy is greater than the impact of "Haydi Kızlar Okula!" or CCT program. This result is consistent with Handa's (2002) results about adult literacy. As mentioned in his study, policy makers should focus more on adult literacy programs. These programs may actually turn out to be more effective than trying to persuade the community or providing financial resources to the families.

In conclusion, "Haydi Kızlar Okula!" Project and the attached conditional cash transfer program are found effective on increasing girls' (and total) primary enrollment rates. However, improvements are required in order to increase their effectiveness. New projects for increasing public contribution, adult literacy or redesigning the CCT schemes should be the first steps of improvement. Increasing the enrollment rates does not mean good learning outcomes. Further research must be done about quality of education and school success in primary education. Schooling and learning outcomes of secondary and higher education should also be examined in the following studies. Impact of girls' education on the socio-economic outcomes is another area of future research with additional data collection.

APPENDIX A

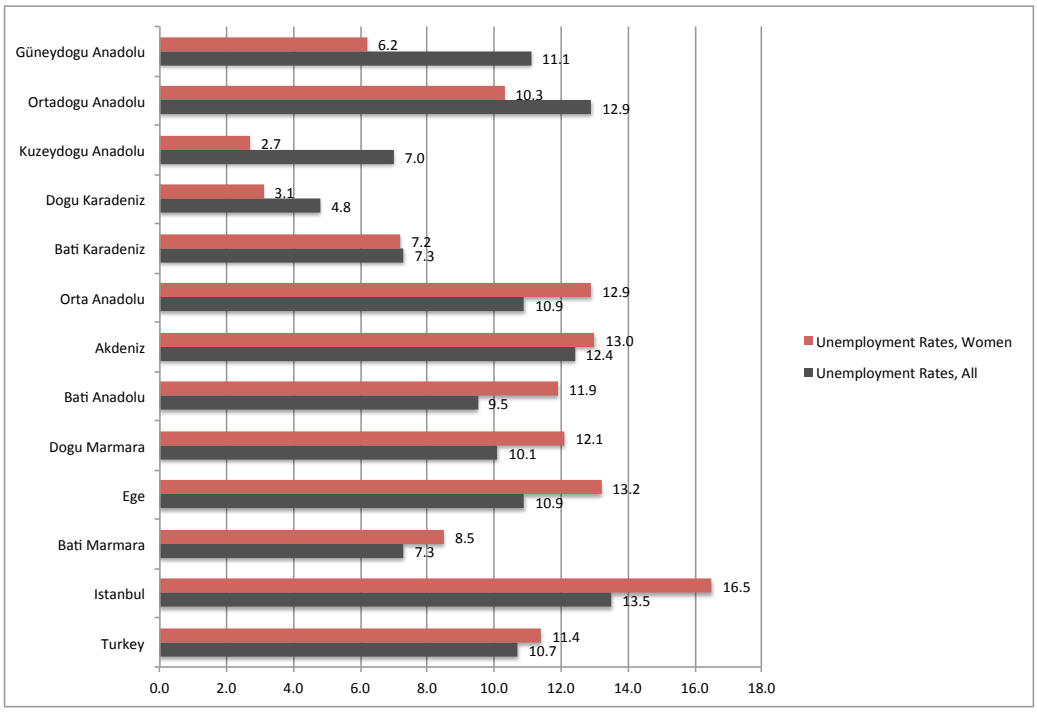

Figure A.1: Unemployment rates for age 15 and over, 2010 (Source: Eurostat, 2011)

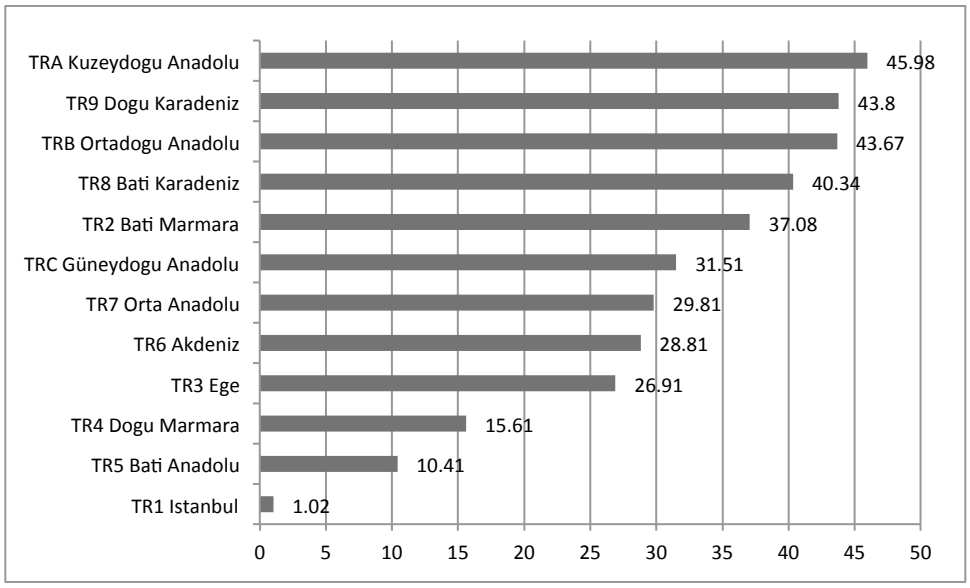

Figure A.2: Percent Rural Population, 2010 (Source: Turkstat, 2011)

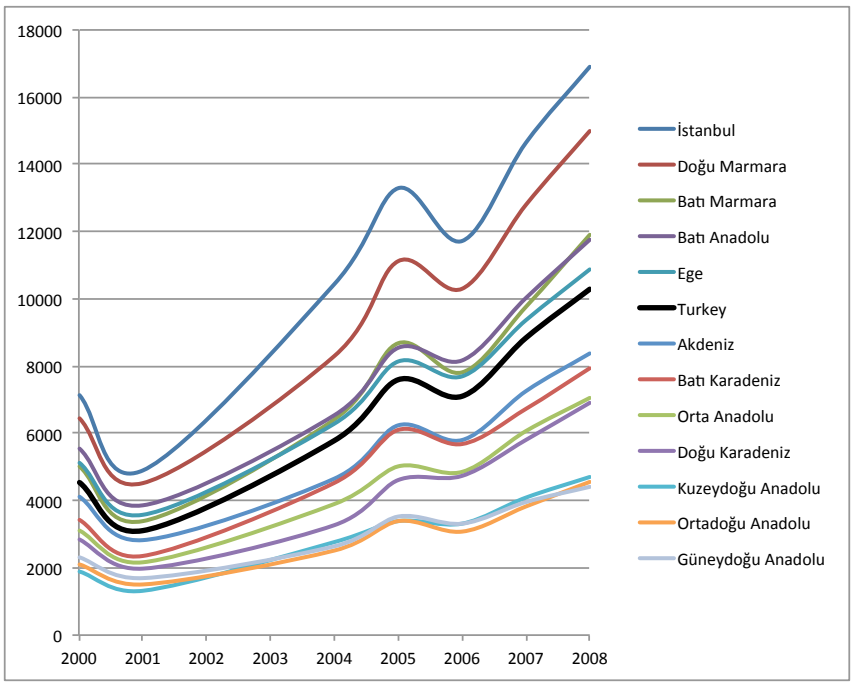

Figure A.3: GDP per capita USD by region (Source: Eurostat, 2011)

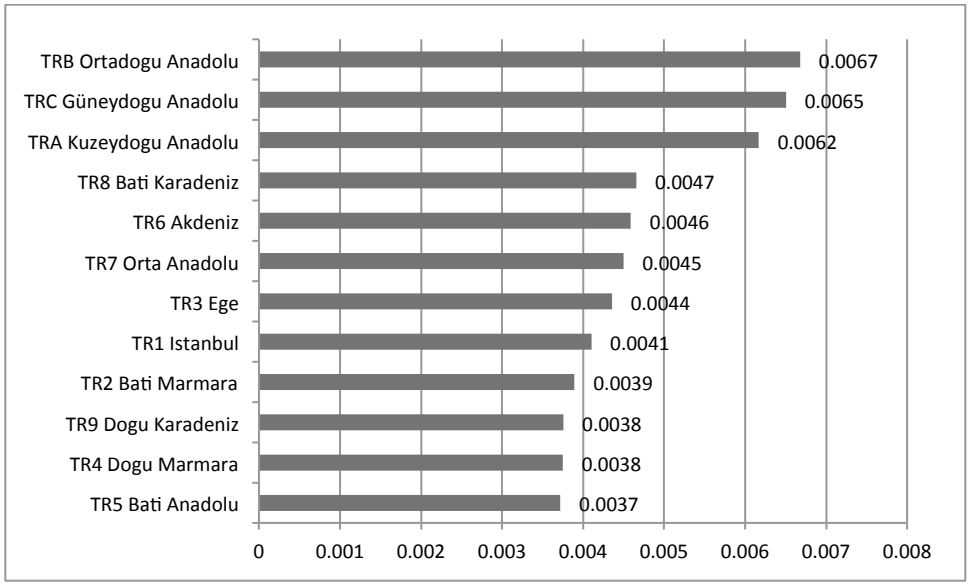

Figure A.4: Infant mortality rates, 2010 (Source: calculated from TurkStat, 2011)

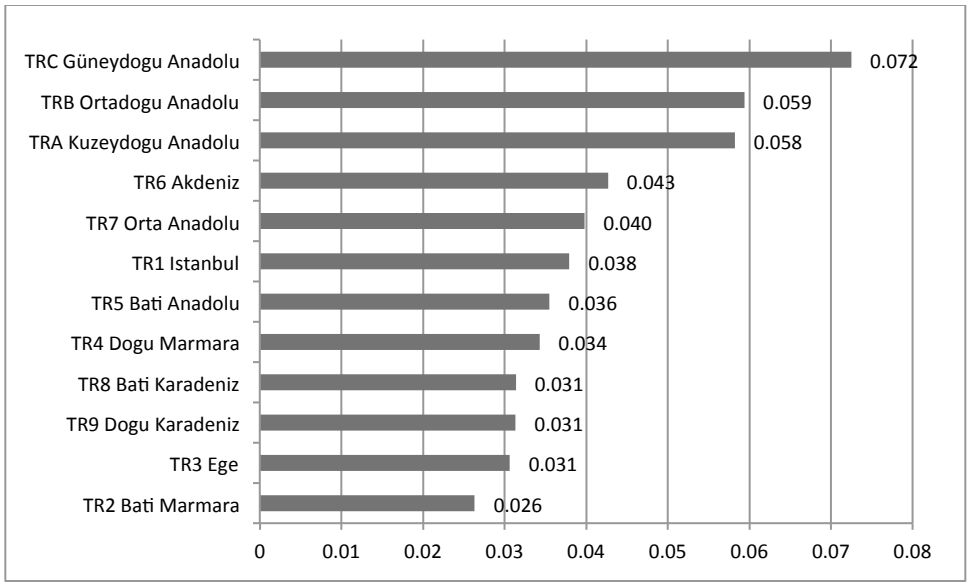

Figure A.5: Fertility Rates, 2010 (Source: calculated from TurkStat, 2011)

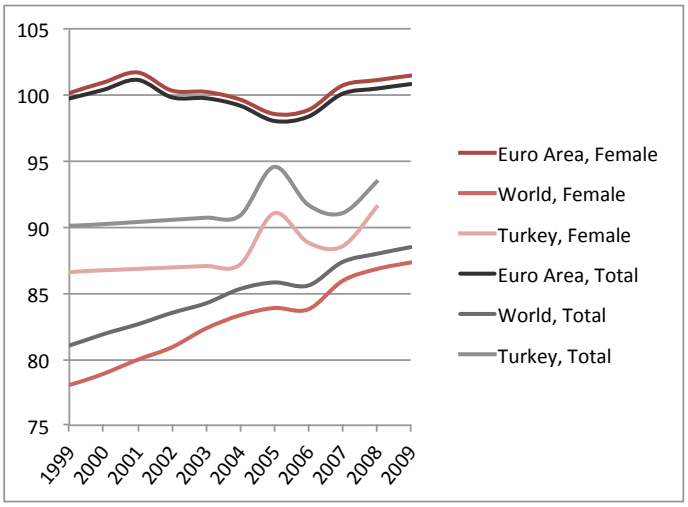

Figure A.6: Primary Completion Rates by years (Source: World Bank, 2011)

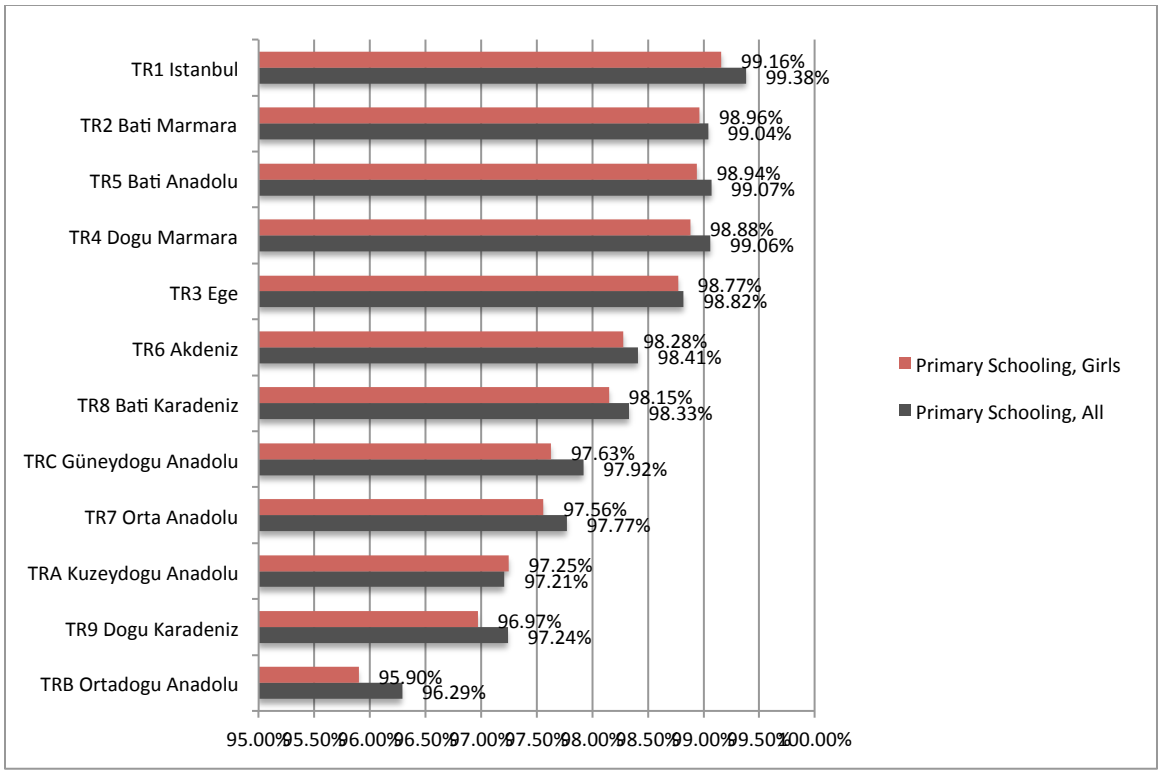

Figure A.7: Primary Schooling 2010 (Source: TurkStat, 2011)

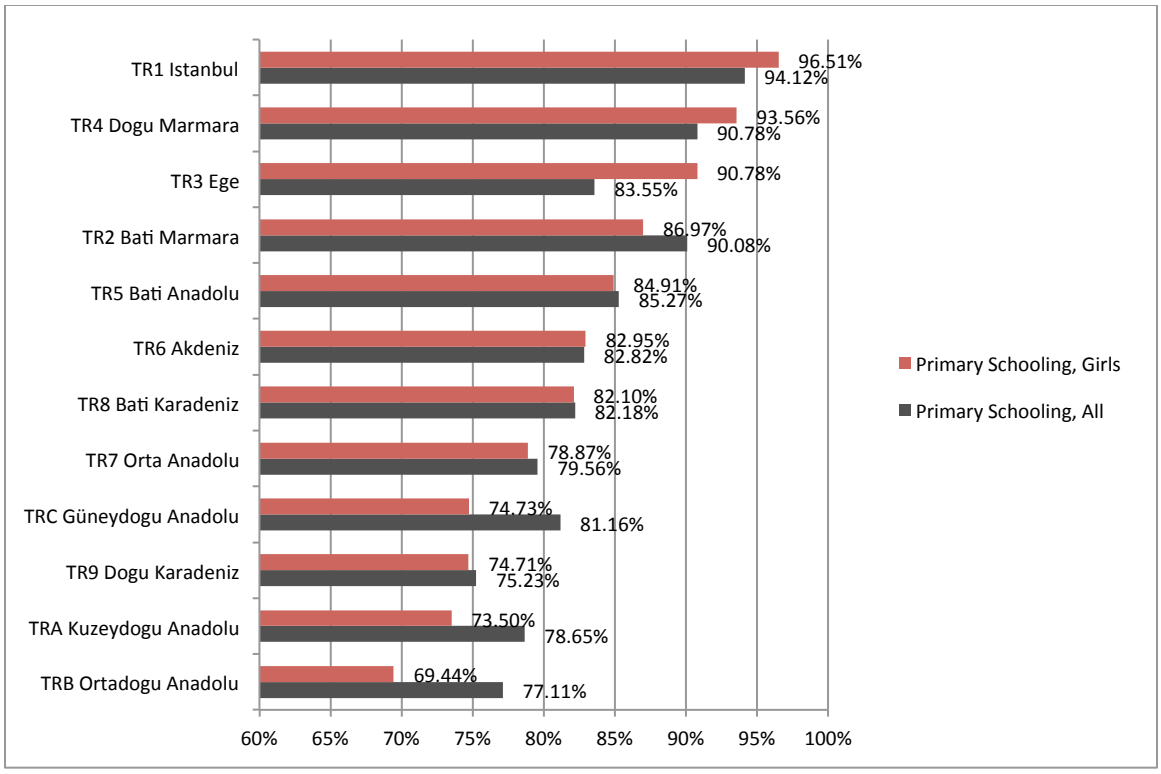

Figure A.8: Primary Schooling 2003 (Source: TurkStat, 2011)

APPENDIX B

Table B.1: Correlation Matrix

	Girls' Schooling	Total Schooling	log of per capita GDP	Education investment ratio	Adult literacy (all)	Adult literacy (female)	School per school age children	Haydi Kızlar Okula	logCCT	Poor
Girls' Schooling	1.000									
Total Schooling	0.955	1.000								
log of per capita GDP	0.621	0.515	1.000							
Education investment ratio	0.037	0.023	-0.033	1.000						
Adult literacy (all)	0.579	0.367	0.666	0.039	1.000					
Adult literacy (female)	0.569	0.358	0.662	0.023	0.996	1.000				
School per school age children	-0.166	-0.199	-0.232	0.107	-0.191	-0.190	1.000			
Haydi Kızlar Okula	0.421	0.457	0.535	-0.025	0.091	0.075	0.007	1.000		
logCCT	0.133	0.187	0.058	0.016	-0.314	-0.315	-0.048	0.451	1.000	
Poor	-0.453	-0.401	-0.409	0.021	-0.521	-0.526	0.335	-0.089	0.134	1.000

APPENDIX C

Table C.1: NUTS codes and corresponding regions in Turkey

NUTS 1	REGIONS (12)	NUTS 2	SUB-REGIONS (26)	NUTS3	PROVINCE (81)
TR1	İSTANBUL	TR10	İSTANBUL	TR100	İSTANBUL
TR2	BATI MARMARA	TR21	TEKIRDAG	TR211	TEKİRDAĞ
				TR212	EDİRNE
				TR213	KIRKLARELİ
		TR22	BASLIKESIR	TR221	BALIKESİR
				TR222	ÇANAKKALE
TR3	EGE	TR31	İZMİR	TR310	İZMİR
		TR32	AYDIN	TR321	AYDIN
				TR322	DENİZLİ
				TR323	MUĞLA
		TR33	MANISA	TR331	MANİSA
				TR332	AFYON
				TR333	KÜTAHYA
				TR334	UŞAK
TR4	DOĞU MARMARA	TR41	BURSA	TR411	BURSA
				TR412	ESKİŞEHİR
				TR413	BİLECİK
		TR42	KOCAELİ	TR421	KOCAELİ
				TR422	SAKARYA
				TR423	DÜZCE
				TR424	BOLU
				TR425	YALOVA
TR5	BATI ANADOLU	TR51	ANKARA	TR510	ANKARA
		TR52	KONYA	TR521	KONYA
				TR522	KARAMAN
TR6	AKDENİZ	TR61	ANTALYA	TR611	ANTALYA
				TR612	ISPARTA
				TR613	BURDUR
		TR62	ADANA	TR621	ADANA
				TR622	İÇEL
		TR63	HATAY	TR631	HATAY
				TR632	K.MARAŞ
				TR633	OSMANİYE
TR7	ORTA ANADOLU	TR71	KIRIKKALE	TR711	KIRIKKALE
				TR712	AKSARAY
				TR713	NİĞDE
				TR714	NEVŞEHİR
				TR715	KIRŞEHİR
		TR72	KAYSERI	TR721	KAYSERİ

				TR722	SİVAS
				TR723	YOZGAT
TR8	BATI KARADENIZ	TR81	ZONGULDAK	TR811	ZONGULDAK
				TR812	KARABÜK
				TR813	BARTIN
		TR82	KASTAMONU	TR821	KASTAMONU
				TR822	ÇANKIRI
				TR823	SİNOP
		TR83	SAMSUN	TR831	SAMSUN
				TR832	TOKAT
				TR833	ÇORUM
				TR834	AMASYA
TR9	DOĞU KARADENIZ	TR90	TRABZON	TR901	TRABZON
				TR902	ORDU
				TR903	GİRESUN
				TR904	RİZE
				TR905	ARTVİN
				TR906	GÜMÜŞHANE
TRA	KUZEYDOU ANADOLU	TRA1	ERZURUM	TRA11	ERZURUM
				TRA12	ERZİNCAN
				TRA13	BAYBURT
		TRA2	AGRI	TRA21	AĞRI
				TRA22	KARS
				TRA23	IĞDIR
				TRA24	ARDAHAN
TRB	ORTADOĞU ANADOLU	TRB1	MALATYA	TRB11	MALATYA
				TRB12	ELAZIĞ
				TRB13	BİNGÖL
				TRB14	TUNCELİ
		TRB2	VAN	TRB21	VAN
				TRB22	MUŞ
				TRB23	BİTLİS
				TRB24	HAKKARİ
TRC	GUNEYDOĞU ANADOLU	TRC1	GAZIANTEP	TRC11	GAZİANTEP
				TRC12	ADIYAMAN
				TRC13	KİLİS
		TRC2	SANLIURFA	TRC21	ŞANLIURFA
				TRC22	DİYARBAKIR
		TRC3	MARDIN	TRC31	MARDİN
				TRC32	BATMAN
				TRC33	ŞIRNAK
				TRC34	SİİRT

Figure C.1 Corresponding Regions for Turkey NUTS1

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